KOSTYUK, Vadim Pavlovich; SOBOLEV, V.S., redaktor; IMAS, R.L., redaktor; SIVACHENKO, Ye.K., tekhnicheskiy redaktor

[Paragenetic analysis of crystalline rocks of Podolia in the region of Vinnitsa] Parageneticheskii analiz kristallicheskikh porod Podolii v raione g. Vinnitsy. Kiev, Izd-vo Akademii nauk USSR, 1955. 110 p. (MLRA 9:4)

1. Chlen-korrespondent AN USSR (for Sobolev)
(Vinnitsa--Rocks, Crystalline and metamorphic)

KOSTYUK, V. P.

CH The discovery of optically positive cordierite in Pobush' migmatites. V. P. Kostyuk. *Mineralog. Sbornik L'vov. Geol. obshchestva* 1953, No. 7, 300-9; *Referat. Zhur., Fiz.* 1955, No. 2703.—A description is given of optically pos. cordierite. "Composition-property" diagrams are set forth for cordierites which are optically neg. and pos. The direct relationship between the 2V value and the *n*s is noted. M. K.

KOSTYUK, V.P.

Magnesia-ferric minerals from crystalline shales of the Bug complex. Min.sbor. no.5:211-218 '51. (MLRA 9:12)

1. Gosuniversitet imeni Ivana Franko, L'vov.
(Magnesium ores) (Iron ores)

ACCESSION NR: AP4020934

Finally, dispersion curves (wavelength dependences) for μ and $\mu\chi$ were obtained for two coatings deposited at the rate of 250-300 Å/sec with normal incidence under a vacuum of about 2×10^{-6} mm Hg onto a substrate heated to 45° and a substrate heated to 400°C. The results are shown in Fig.3 of the Enclosure; the indicated values of the optical constants are relative, rather than the true or absolute values. In the aggregate the data indicate that the crystal structure of layers deposited onto hotter substrates is more nearly perfect. Orig.art.has: 2 formulas and 5 figures.

ASSOCIATION: none

SUBMITTED: 15May63 DATE ACQ: 02Apr64 ENCL: 02

SUB CODE: PH NR REF SOV: 008 OTHER: 001

Card 3/3

ACCESSION NR: AP4020934

the molecular Cr beam has a high "pumping" capacity and that the deposited Cr is a good "getter". This was utilized in depositing the test coatings. The Cr coatings, particularly those on heated substrates, are characterized by high mechanical strength, and, thus, are suitable as undercoatings for high-quality silver or aluminum mirrors. The optical properties were measured by the method of re-establishment of plane polarization incident to three-fold reflection from two parallel mirrors; the earlier experimental arrangement (Opt.i spektr.,3,361,1957) was modified somewhat to permit working with smaller mirrors. The optical constants μ and $\mu\chi$ were measured for $\lambda = 550$ mμ. μ is the index of refraction and $\mu\chi$ is the coefficient of absorption, as calculated from the measured phase difference and azimuth angle of the re-established polarization. The dependences of the constants on the rate of deposition and the temperature of the substrate are shown in Figs.1 and 2 of the Enclosure. (Fig.2.also gives the variation of the conductivity of the Cr coatings.) Further measurements were made to determine the dependence of the optical constants on the vacuum, aging and annealing; these factors, when varied within reasonable limits, appear to have little effect on the optical properties. Some experiments were also performed to evaluate the anisotropy associated with oblique deposition; the anistoropy is significant and is not eliminated even by prolonged annealing.

2/3

Card

ACCESSION NR: AP4020934 S/0051/64/016/002/0304/0309

AUTHOR: Kostyuk, V.P.; Shklyarevskiy, I.N.

TITLE: Optical properties of chromium mirrors in the visible region

SOURCE: Optika i spektroskopiya, v.16, no.2, 1964, 304-309

TOPIC TAGS: optical constant index of refraction, absorption coefficient, optical anisotropy, chromium layer, chromium coating, chromium mirror

ABSTRACT: Preliminary studies of the optical properties of chromium coatings deposited under vacuum showed that these seem to vary from specimen to specimen in an erratic manner. Accordingly, the present investigation was undertaken in order to determine how the optical constants of chromium mirrors depend on the preparation conditions. The chromium coatings were deposited by vacuum (5×10^{-5} to 2×10^{-6} mm Hg) evaporation from tungsten crucibles onto glass or quartz substrates, located at a distance of 15-20 cm from the crucible. The initial material was vacuum remelted electrolytic chromium; the substrates were outgassed and heated to different temperatures in the range from 45 to 600°C. In agreement with the results of G.S.Mikhaylov, G.M.Persnyakova and O.M.Akimovich (Ukr.fiz.zhur.,6,73,1962) it was found that

Card 1/3

KOSTYUK, V.P., nauchnyy sotrudnik

Supracondyloid fractures of the humerus associated with injuries to the bones of the forearm. Zdrav.Bel. 7 no.11:25-27 N '61.
(MIRA 15:11)

1. Minskiy nauchno-issledovatel'skiy institut travmatologii i ortopedii (dir. - prof. R.M.Minina, nauchnyy rukovoditel' - prof. B.N.Tsypkin [deceased]).

(HUMERUS--FRACTURE) (ARM--WOUNDS AND INJURIES)

KOSTYUK, V.P., nauchnyy sotrudnik

Treatment of neglected supracondyloid fractures of the humerus. Zdrav. Bel. 7 no. 4:64-66 Ap '61. (MIRA 14:4)

1. Iz Minskogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii (direktor - prof. R.M. Minina, nauchnyy rukovoditel'- prof. B.N. TSypkin [deceased]).
(HUMERUS--FRACTURE)

KOSTYUK, V.P., nauchnyy sotrudnik

Closed osteosynthesis of supracondyloid fractures of the humerus using Kirschner's wire. Zdrav. Bel. 6 no.12:24-27 D '60.
(MIRA 14:1)

1. Iz Minskogo nauchno-issledovatel'skogo instituta travmatologii i ortopedii (direktor instituta - prof. R.M. Minina), nauchnyy rukovoditel' - prof. B.N. TSypkin).
(HUMERUS--FRACTURE)

BONDAR', A.M.; MUSHIY, R. Ya.; KOSTYUK, V.N.; MOSHKOVICH, F.E.

Studying the conditions of the explosive decomposition of allene.
Khim. prom. 41 no. 12:923-924 D '65. (MIRA 19:1)

KOSTYUK, V.I. (Kiyev)

Optimalizing control without search oscillations using adaptive plant models. Avtomatyka 10 no.2:21-28 '65.

(MIRA 18:6)

STEPANOV, A.V.; STEPANOVA, A.A.; KOSTYUK, V.I.

Pyrolysis and the compression of pyrogas using a high-pressure pyrolysis chamber. Neft. i gaz. prom. no.3:56-58 Jl-S '64. (MIRA 17:12)

KOSTYUK, V.I
AID Nr. 994-8 20 June

ADAPTIVE SYSTEMS USING FREQUENCY FILTERS (USSR)

Kostyuk, V. I. IN: Akademiya nauk SSSR, Izvestiya. Otdeleniye tekhnicheskikh nauk, Tekhnicheskaya kibernetika, no. 2, Mar-Apr 1963, 165-173.
S/280/63/000/002/020/021

The extension of the use of adaptive system frequency filters to cases in which noise other than white noise is acting on the system is proposed (see illustration). It is shown that 1) the spectral density of the total error in an optimum system depends on the frequency and 2) the division factor of the

Card 1/2

S/019/62/000/006/031/083
A156/A126

16.8100

AUTHOR: Kostyuk, V.I.

TITLE: Self-adjusting servosystem

PERIODICAL: Byulleten' izobreteniy, no. 6, 1962, 35

TEXT: Class 21c, 46_{50}. No. 145646 (722798/26 of March 22, 1961). A self-adjusting servosystem, the distinctive feature of which consists in that for achieving an indirect measurement of an effective signal's parameters and of a stationary interference that is not a "white noise", at a time when there is no correlation between effective signal and interference, the optimization circuit is provided with either three frequency filters possessing different frequency characteristics, or one frequency filter and a link which produces at the output the RMS value of total error.

Card 1/1

KOSTYUK, V.I. (Kiyev)

Servo system for directing an electrode along a seam. Avtomatyka 7 no.5:35-42 '62. (MIRA 15:11)
(Pipe--Welding) (Servomechanisms)

unchanged but, additionally, the stability of the system can be affected. Some considerations are presented on the use of combination control in self-adjusting systems in which the coefficients of the input signal derivatives are adjusted for minimum error. A closed loop self-adjusting system is recommended. There are 2 figures and 1 table.

SUBMITTED: June 10, 1961

Table

$\Psi(t)$	$K(D)$-изображение transform
$a_0t^2 + a_1t + a_2$	D^3
$a\sin\omega t + b\cos\omega t$	$D^2 + \omega^2$
$te^{-\alpha t}$	$(D+\alpha)^2$
$\frac{t^2}{2}e^{-\alpha t}$	$(D+\alpha)^3$
$e^{-\alpha t}(\cos\omega t - \frac{d}{\omega}\sin\omega t)$	$(D+\alpha)^2+\omega^2$
$\mathrm{sh}\,\beta t$	$D^2-\beta^2$

Card 3/3

take X(D) in the form of the K(D) transform of the function, or have the latter as one of the factors of X(D), where X(D) is an operator defined by the equation of motion of the system

$$F(D)\varepsilon = X(D)\Psi(t) \qquad (1.1)$$

where ε is the error and D the well-known differential operator. The study is limited to systems of fourth-order with respect to D. Consideration of sinusoidal inputs for the case of exact differentiation shows that it is possible to eliminate completely velocity and acceleration errors. On the other hand, adjustment of the combination control system to eliminate completely the steady-state error causes the velocity and acceleration errors to increase, compared to the system not using combination control, at high frequencies (high input accelerations). With exact differentiation the use of combination control has no influence on the stability of the system. With approximate differentiation (such as supplied by RC networks) the conclusions relative to the type of error in the system remains

16.2000 (4103, 4303)

S/024/62/000/001/007/013
E140/E435

AUTHOR: Kostyuk, V.I. (Kiyev)

TITLE: Combination servosystem with limited number of control-signal derivatives

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Energetika i avtomatika. no.1, 1962, 143-151

TEXT: The introduction of control-signal derivatives into the automatic control system will increase the precision but will render the system more susceptible to noise. Since in any case, only the first two derivatives can be obtained in a practical way, the author limits his consideration to systems with this number of derivatives. The method adopted is that of the K(D) transform (some of these transforms are given in the table) following V.S.Kulebakin (Ref.6: On the fundamental problems and methods of improving automatic control system quality. Trans. of the second All-Union Conference on the Theory of Automatic Control, v.II, Izv. AN SSSR, 1955) who showed that to eliminate the forced component of error in a given control action it is necessary to

Card 1/3

KOSTYUK, V.I. (Kiyev)

Stability of a system with "multiplying" compounding links.
Avtomatyka no.5:62-64 '61. (MIRA 14:10)
(Automatic control) (Pulse techniques (Electronics))

Appliance for adjusting the electrode position.... S/019 61/000/018/036/073
A152/A126

of tack welds upon the adjustment process, the appliance is fitted with a relay which operates whenever the pickup signal rises above a given value, and cuts off the amplifier.

Card 2/2

S/019/61/000/018/036/073
A152/A126

AUTHOR: Kostyuk, V.I.

TITLE: Appliance for adjusting the electrode position in relation to the weld joint

PERIODICAL: Byulleten' izobreteniy, no. 18, 1961, 31

TEXT: Class 21h, 30_{17}. No. 141233 (723012/24 of March 23, 1960). 1) An appliance for adjusting the electrode position in relation to the weld joint, used in welding pipings, containing an inductance pickup whose signal depends on the position of the pickup in relation to the butt of the welded edges, as well as an amplifier and an electric motor which advances the electrode in a transverse direction; the distinctive feature consists in that, for the purpose of increasing the adjustment accuracy and eliminating the effects of the protrusion of edges situated one above the other, upon the quality of the welding, this appliance is equipped with another pickup which responds to such protrusions of the welded butt edges, while the output voltage of this pickup is fed into the amplifier input in such a way that it compensates the influence of a protrusion upon the main pickup signal. 2) In order to eliminate the effects

Card 1/2

FEL'DBAUM, O.A.; KUNTSEVICH, V.M.; KOSTYUK, V.I.;
MANDROVSKIY-SOKOLOV, B. Yu. [Mandrovs'kyi-Sokolov, B. IU.]
VAN-NAYS, R. [Van Nyce, R. I.] (SShA)

Concerning the optimum value of the trial steps of extremum systems.
Avtomatyka no.2:94-97 '61. (MIRA 14:6)
(Automatic control)

KOSTYUK, V.I. (Kiyev)

Servomechanism for directing the electrode along the weld in electric welding of pipes. Avtomatyka no. 1:56-64 '61. (MIRA 14:4)
(Servomechanisms) (Pipe--Welding)

Disturbance control with self- ... S/194/62/000/008/018/100
D201/D308

gaussian interference (e.g. of white noise type) a much smaller overall r.m.s. error as compared with the usual types of self-adapting systems. The results obtained may be extended to follow-up systems of higher orders. The expressions obtained make it possible to obtain optimum compounding couplings for concrete follow-up systems. An example of design is given. [Abstracter's note: Complete translation.]

Card 2/2

41762

16.8000

S/194/62/000/008/018/100
D201/D308

AUTHOR: Kostyuk, V.I.

TITLE: Disturbance control with self-varying parameters of the follow-up systems

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1962, abstract 8-2-117 f (Izv. Kiyevsk. politekhn. in-ta Sb. tr. aspirantov Elektrotekhn. fak., 1961, no. 1, 14 - 28)

TEXT: Self-adapting follow-up systems are considered in which simultaneous use is made of introducing into the control law a statically estimated derivative of the control input (a summing compounding coupling) together with the principle of varying the system parameters according to the statically estimated derivative of the control input (a multiplying compounding coupling). A quantitative analysis of a second-order system is given showing that the follow-up systems which combine the principle of disturbance control with that of self-adaptation of parameters as depending on velocity or acceleration of the input signal, exhibit in the presence of a

Card 1/2

KOSTYUK, V. I. Cand Tech Sci -- "Study of self-adjusting follow-up systems (applicable to duplicating devices of welding machs)." Kiev, 1961 (Inst of Electric Welding im Ye. O. Paton, Acad Sci UkSSR). (KL, 4-61, 197)

32206
S/102/60/000/005/007/008
D251/D305

6,9210

AUTHOR: Kostyuk, V. I. (Kiyev)

TITLE: Two frequency filter system

PERIODICAL: Avtomatyka, no. 5, 1960, 66-69

TEXT: In the case of a tracking system with white noise interference, the following relation is derived for the relationship between the autocorrelation function of the summed error $A_{\varphi_s}(\tau)$ ($\tau \geqslant 0$), the autocorrelation function of the interference $A_N(\tau)$ and the transmission function of the optimum system in the closed state $Y_{cl}(p)$ [Abstractor's note: This is approximate relationship]:

$$A_{\varphi_s}(\tau) = A_N(\tau)\left[1 - \sum_{k=1}^{n} Y_{cl}(c_k)\right] \qquad (3)$$

Card 1/2

SUBMITTED: June 21, 1960
Card 2/2

KOSTYUK, V.I.; KUNTSEVICH, V.M. [Kuntsevych, V.M.]; MANDROVSKIY-SOKOLOV, B.Yu. [Mandrovs'kyi-Sokolov, B.IU.]

Concerning S. Chang's paper "Optimization of the adaptive function by the Z-transform method". Avtomatyka no.4:14-31 '60.
(MIRA 13:11)

(Automatic control)

82435

Synthesis of Adaptive Servomechanisms Using the Method of Two Frequency Filters (A Generalization of Burt's Method)

S/102/60/000/02/02/005
C111/C222

This statement permits to apply the method of two frequency filters proposed by E.G. Burt (Ref. 2) not only in the special case $S_{\psi}(\omega) = \frac{k^2}{\omega^4}$ considered in (Ref. 2) but also for all input signals of the type (4). The author mentions Kolmogorov. There are 6 figures and 7 references : 3 Soviet, 3 American and 1 German.

ASSOCIATION: Kyyivs'kyy ordena Lenina politekhnichnyy instytut (Kiev "Order of Lenin" Polytechnical Institute)

SUBMITTED: December 16, 1959

Card 2/2

Kostyuk, V.I

82435
S/102/60/000/02/02/005
C111/C222

16.9500

AUTHOR: Kostyuk, V.I.

TITLE: Synthesis of Adaptive Servomechanisms Using the Method of Two Frequency Filters (A Generalization of Burt's Method)

PERIODICAL: Avtomatika, 1960, No.2, pp. 38-49

TEXT: The principal result of the paper consists in the statement that in a system being optimal in the sense of Wiener the spectral density of the apparent error is constant : $S_{\varphi s}(\omega) = a^2$ if the spectral density of the useful input signal is a fractional rational function of ω^2 :

$$(4) \quad S_{\psi}(\omega) = \frac{b_m \omega^{2m} + \ldots + b_1 \omega^2 + b_0}{c_n \omega^{2n} + \ldots + c_1 \omega^2 + c_0}$$

and if the useful signal does not correlate with the noise.

Card 1/2

Combined utilization of ...

used. There are 7 figures and 9 references: 5 Soviet-bloc and 4 non-Soviet-bloc. The references to the English-language publications read as follows: I.R. Moore, Combination open-cycle, closed-cycle systems, Proc. IRE, v. 39, N 11, pp.1421-1432, 1951; R.F. Drenick, R.A. Shahbender, Adaptive servomechanism, Trans. AIEE, v. 76, part II, 1957; I.A. Aseltini, A.R. Manicini, C.W. Sarture, A survey of adaptive control systems, Trans IRE on Automatic Control, PGAC-6, December 1958, and M.I. Kirby, R.M. Aiulianelli, Stability of varying-element servomechanisms with polynomial coefficients, Trans. AIEE, v. 70, pt II, 1951, pp. 1447-1950.
[Abstractor's note: Where not explained, the symbols used in this article are not defined].

ASSOCIATION: Kyyvs'kyy ordena Lenina politekhnichnyy instytut, (Kiev Polytechnic Institute of the Order of Lenin)

SUBMITTED: October 10, 1959

Card 12/12

of all second order disturbances decreases. Examination of Eq. (26) was carried out with two devices, type MN-7 /Abstractor's note: Not described/ connected in parallel. This experiment confirmed that the introduction of "multiplying" compound links makes it possible to reduce the error several times more than by means of "additive" compound links only Eq. (3). Finally the introduction of "multiplying" links increases the response speed of the system. It was found, experimentally, that the optimum relation of the coefficients ϵ is

$$b_{11} = b_{01} = b_{12} = b_{02} = a'_{11} = a_{01} = a_{02} = a'_{12} = a,$$

$$a''_{11} = a''_{12} = b_{22} = b_{21} = a_{22} = a_{21} = b. \qquad (31)$$

It can be seen from Eqs. (22) and (27) that:
$a_{22} = \tau a''_{12}$, $a_{21} = \tau a'_{11}$, $a'_{11} = \tau a''_{11}$, $a'_{12} = \tau a''_{12}$. Hence $b = \tau a$. (32)
In order to obtain the absolute value of the first two derivatives of the control action, full wave or half wave rectification can be

Combined utilization of ...

$$+ a_{00} + a_{01}/p\Psi + a_{02}/p^2\Psi/\Phi = \Gamma(b_{20} + b_{21}/p\Psi + b_{22}/p^2\Psi)p^2 +$$

$$+ (b_{10} + b_{11}/p\Psi + b_{12}/p^2\Psi)\, p + b_{00} + b_{01}/p\Psi + b_{02}/p^2\Psi/\Psi, \quad (26)$$

where

$$b_{20} = a_{20},\ b_{21} = a_{21},\ b_{22} = a_{22},\ b_{10} = a_{10},\ b_{11} = a_{11},\ b_{12} = a_{12},$$

$$b_{00} = a_{00},\ b_{01} = a_{01},\ b_{02} = a_{02};\ a_{11} = a'_{11} + a''_{11}p;$$

$$a_{12} = a'_{12} + a''_{12}p. \quad (27)$$

The application of "multiplying" links permits an increase in the average amplification factors of the system, i.e. an increase in the degree of accuracy of the servo-system. The stability will also increase. Moreover, the effect on performance of the system

Combined utilization of ...

According to the second form of the conditions of invariance, where ε must be chosen, we have:

$$b_1 = a_1 \; Ta \; b_2 = a_2. \tag{24}$$

Then "additive" compound links will be as follows:

$$k_1 = \frac{F + \tau pF}{\alpha_1 \alpha_2} = \frac{F_0 + F_1/p\Psi/ + F_2/p^2\Psi/ + F_1\tau p/p\Psi/ + F_2\tau p/p^2\Psi/}{\alpha_2(\alpha_{10} + \alpha_{11}/p\Psi/ + \alpha_{12}/p^2\Psi/)},$$

$$k_2 = \frac{F\tau + J}{\alpha_1 \alpha_2} = \frac{F_0\tau + J + F_1\tau/p\Psi/ + F_2\tau/p^2\Psi/}{\alpha_2(\alpha_{10} + \alpha_{11}/p\Psi/ + \alpha_{12}/p^2\Psi/)}. \tag{25}$$

With this equation, Eq. (21) will become

$$\tau p^3 + (a_{20} + a_{21}/p\Psi/ + a_{22}/p^2\Psi/)\, p^2 + (a_{10} + a_{11}/p\Psi/ + a_{12}/p^2\Psi/)p +$$

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Combined utilization of ...

Dynamic equation of the system

$$\left[J\tau p^3 + (F\tau + J)p^2 + (F + \tau pF)p + \alpha_1\alpha_2\right]\Phi = (k_2\alpha_1\alpha_2 p^2 + k_1\alpha_1\alpha_2 p + \alpha_1\alpha_2)\Psi, \quad (20)$$

or

$$(p^3 + a_2p^2 + a_1p + a_0)\Phi = (b_2p^2 + b_1p + b_0)\Psi; \quad (21)$$

where

$$a_2 = \frac{F\tau + J}{J\tau}, \quad a_1 = \frac{F + \tau pF}{J\tau}, \quad a_0 = \frac{\alpha_1\alpha_2}{J\tau}, \quad b_2 = \frac{\alpha_1\alpha_2 k_2}{J\tau}, \quad b_1 = \frac{\alpha_1\alpha_2 k_1}{J\tau}$$

$$b_0 = \frac{\alpha_1\alpha_2}{J\tau}. \quad (22)$$

This can be rewritten as

$$(p^3 + a_2p^2 + a_1p + a_0)\Phi = \left[p^3 + (a_2 - b_2)p^2 + (a_1 - b_1)p\right]\Psi, \quad (23)$$

Card 8/12

Combined utilization of ...

A practical example of the third order system is worked out and several sets of oscillographs of the transient process of this particular servo-system are presented. Further, a third order servo-system is analyzed where, in addition, a change of amplification factor and viscous friction is applied as a function of the absolute value of the first two derivatives of the control action (Fig. 1b). Dynamic equations of the elements in the system are as follows: Law of regulation:

$$\Sigma = \Psi + k_1 p\Psi + k_2 p^2\Psi - \Phi, \tag{17}$$

Amplifier:

$$(\tau p + 1)\mu = \alpha_1\Sigma, \text{ where } \alpha_1 = \alpha_{10} + \alpha_{11}/p\Psi/ + \alpha_{12}/p^2\Psi/. \tag{18}$$

Follow up shaft

$$(Jp^2 + Fp)\Phi = \alpha_2\mu, \text{ where } F = F_0 + F_1/p\Psi/ + F_2/p^2\Psi/. \tag{19}$$

Card 7/12

Combined utilization of ...

Fig. 1a represents an "additive" servo-system of the third order. Fig. 1b represents the system with "multiplying" links. With the change of amplification factor α_1 and the viscous friction F as a function of absolute magnitude of the first two derivatives of the control action we have

$$\alpha_1 = \alpha_{10} + \alpha_{11}/p\Psi/ + \alpha_{12}/p^2\Psi/, \quad F = F_0 + F_1/p\Psi/ + F_2/p^2\Psi/. \qquad (9)$$

In a general case, the equation of the n-th order system with "multiplying" links of the type shown in Eq. (9) will be:

$$\left[p^n + (a_{(n-1)0} + a_{(n-1)1} \cdot/p\Psi/ + a_{(n-2)2}/p^2\Psi/)p^{n-1} + \ldots + \right.$$

$$\left. + (a_{10} + a_{11}/p\Psi/ + a_{12}/p^2\Psi/p + a_{00} + a_{01}/p\Psi/ + a_{02}/p^2\Psi/\right]\Phi =$$

$$= (a_{00} + a_{01}/p\Psi/ + a_{02}/p^2\Psi/)\Psi. \qquad (16)$$

Card 6/12

Combined utilization of ...

SOV/102/60/000/001/003/006
D222/D302

Fig. 1b

b - 3 "Multiplying" compound links.

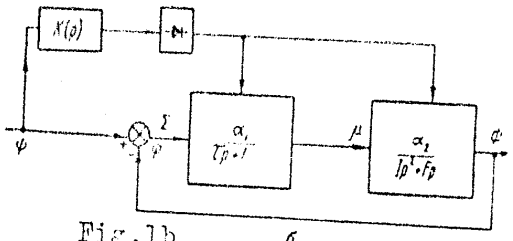


Fig.1b б

Fig. 1c

c - 3 Combination of "additive" and "multiplying" compound links.

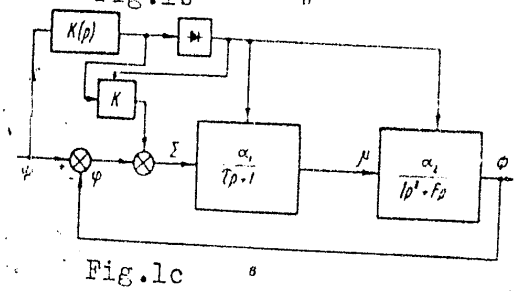


Fig.1c в

Card 5/12

Combined utilization of ...

then $b_3(p) \cdot \Psi(t) = C(p) \cdot (p^2 + \omega^2) \cdot A \sin \omega t \equiv 0.$

Where K(p) is the operating factor, K(p) should be chosen that the operator $b_3(p)$ has

$$K(p) = \frac{1}{\Psi(p)}, \qquad (6)$$

as a common multiplier, where $\Psi(p)$ is the Laplace transform of the control action.

Fig. 1 Structural layout of a servo-system of the third order.

a - 3 "Additive" compound links.

Fig. 1 a.

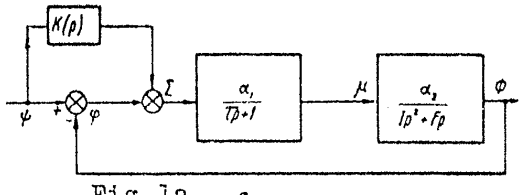


Fig.1a

Рис. 1. Структурна схема слідкуючої системи третього порядку:

а — з «додавальними» компаундуючими зв'язками;
б — з «помножуючими» компаундуючими зв'язками;
в — з поєднанням «додавальних» та «помножуючих» компаундуючих зв'язків.

Card 4/12

Combined utilization of ...

follow accurately the second form of the conditions of invariance, choosing

$$b_1 = a_1,\ b_2 = a_2. \tag{3}$$

Moreover the second form of conditions of invariance up to ε is fulfilled for systems of higher orders. In a system of the higher than 3rd order, the forced component of the error can be eliminated for a certain type of control action, if the conditions of invariance of the 3rd form are fulfilled. If $\psi(t) = v_1 t + v_2 t^2$ for $t > 0$, where $\psi(t)$ is the change of control action, then in order to eliminate the forced part of the error, it is sufficient that Eq. (4)

$$b_3(p) = K(p) \cdot C(p) = p^3 \cdot C(p) \tag{4}$$

be true, or for $\psi(t) = A \sin \omega t$, it is necessary that

$$b_3(p) = K(p) \cdot C(p) = (p^2 + \omega^2) \cdot C(p) \tag{5}$$

Combined utilization of ...

eliminated by closely following the conditions of invariance in the so-called second form, A.G. Ivakhnenko (Ref. 2: Elektroavtomatika (Electro-Automatics), GTI Ukr SSR, 1957). Changes of the amplification factor and time constant for a certain type of input signal, without the application of "additive" compound links in the presence of interference, are described in R.F. Drenick, R.A. Shahbender (Ref. 6: Adaptive servomechanism, Trans. AIEE, v. 76, part II, 1957). The equation of dynamics of a combined servo-system of the n-th order with a compound link of the form $k(p) = k_{10}p + k_{20}p^2$ can be written

$$(a_n p^n + a_{n-1}p^{n-1} + \ldots + a_1 p + a_o)\varphi = [a_n p^n + a_{n-1}p^{n-1} + \ldots + a_3 p^3 + (a_2 - b_2)p^2 + (a_1 - b_1)p]\Psi, \text{ where } \varphi = \Psi - \Phi. \quad (2)$$

It can be seen from Eq. (2) that the error disappears only in the systems of the first and second order, where it is possible to

20036

16.9500 (1031, 1132, 1344) SOV/102/60/000/001/003/006
D222/D302

AUTHOR: Kostyuk, V.I.

TITLE: Combined utilization of control by disturbances and the principle of self-optimizing of parameters in a servomechanism with incomplete numbers of differentiators

PERIODICAL: Avtomatika, no. 1, 1960, 26-37

TEXT: The article describes servo-systems with "additive" and "multiplying" compound links as regards the absolute magnitude of the first two derivatives of the various types of control action. The effect on accuracy of an "additive", "multiplying" and a combined servo-system is analyzed. Combined systems of control are used when great accuracy is required at high speeds and accelerations of the commanding shaft. In a servo-system with derivatives of a lower than third order, the forced and transient errors can be

Card 1/12

On the work of S. Chang ...

S/102/60/000/004/002/006
D251/D304

ment, AIEE Winter meeting, Conference Paper, Febr. 1959. P. Staffin, Executive-Controlled adaptive systems, AIEE Winter Meeting, Conference Paper, Febr. 1959.

SUBMITTED: May 20, 1960

Card 3/3

On the work of S. Chang ...

tomatyka, no. 4, 1960). The author state that the results of Chang and Kryzhanovs'kyy and Soltyk, despite different methods of approach, are of the same form. Attention is drawn to the resemblance between block-diagrams of the two methods and the fact that both recommend the derivative sensing system with a weighted sum of all previously measured values of the figure of merit (cost function). It is shown that these systems give an advantage in noise stability only in the case of slowly-changing perturbances. The authors state that there is no practical difficulty in constructing Chang's schemes in practice, but that certain of his basic statements and assumptions need further clarification. There are 11 figures, 4 tables and 24 references: 7 Soviet-bloc and 17 non Soviet-bloc. The 4 most recent references to the English-language publications read as follows: T.P. Goodman, R.H. Hillsley, Continuous self-measurement of characteristics of systems with random inputs. A step towards self-optimalizing control, ASME Paper, 58 IRD 5, 1958; G.W. Anderson, J.A. Aseltine, A.R. Mancini, C.W. Sature. A self adjusting system for optimum dynamic performance. IRE National Convention Record, Part 4, 1958; J.E. Bertram, Control by stochastic adjust-

Card 2/3

S/102/60/000/004/002/006
D251/D304

16.8000

AUTHORS: Kostyuk, V.I., Kuntsevych, V.M., and Mandrovs'kyy, Sokolov, B.Yu.

TITLE: On the work of S. Chang "Application of the z-transformation method for optimization of self-adjusting systems"

PERIODICAL: Avtomatyka, no. 4, 1960, 14 - 31

TEXT: An outline is given of the above-named work of S. Chang (Ref. 1: AIEE Conference Paper, NCP, 59-1296) in which two kinds of systems are considered: The derivative sensing system and the alternate biassing system. The authors consider Chang's work in relation to other investigators, in particular V.V. Kazakevich (Ref. 24: Sistemy ekstremal'nogo regulirovaniya i nekotoryye sposoby uluchsheniya ikh kachestva (Systems of Extremal Control and Some Methods of Improving Their Properties) sb. Avtomaticheskoye upravleniye i vychislitel'naya tekhnika, pod. red. V.V. Solodognikova, Mashgiz, 1958) and O.M. Kryzhanovs'kyy and V.Ya. Soltyk (Ref. 22: Av-

Card 1/3

Extremal Characteristics of a Servo Subject to an Input that Varies in Sign

taken from other sources; the symbols are not defined. Figs 3-6 show results obtained by means of electronic analogues. There are 6 figures and 3 references, 2 of which are Soviet and 1 English.

ASSOCIATION: Kyyvs'kyy ordena Lenina politeknichnyy instytut (Kiev "Orderof Lenin" Polytechnic Institute)

SUBMITTED: February 16, 1959.

Card 2/2

16.9500

80170

S/102/59/000/02/005/011

AUTHOR: Kostyuk, V. I.

TITLE: Extremal Characteristics of a Servo Subject to an Input that Varies in Sign

PERIODICAL: Avtomatika, 1959, Nr 2, pp 56-70 (UkrSSR)

ABSTRACT: This almost entirely mathematical paper deals with the dynamics of linear servo systems of orders two and three. Systems of order three or higher are shown to have extremal characteristics, with the result that any increase in gain round the loop causes the error arising from search for the peak to increase. A second-order system does not show this behaviour, unless the signal changes in sign so frequently that the transient response does not have time to die away between one change and the next. A second-order system may also show extremal behaviour if its excursions take it beyond its range of linearity. Proposals are made about a means of adjusting the gain of any such servo, the object being to provide a gain such that at any given frequency of input the response will be optional. The symbols and equations are

Card 1/2

PHASE I BOOK EXPLOITATION SOV/4526

Soveshchaniye po teorii invariantnosti i yeye primeneniyu v avtomaticheskikh ustroystvakh. Kiyev, 1958

Teoriya invariantnosti i yeye primeneniye v avtomaticheskikh ustroystvakh; trudy soveshchaniya (Theory of Invariance and Its Applications to Automatic Devices; Transactions of the Conference Oct. 16-20, 1958) Moscow, 1959. 381 p. No. of copies printed not given.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Otdeleniye tekhnicheskikh nauk.

Resp. Ed.: V.S. Kulebakin, Academician; Editorial Commission: V.A. Bolner, Doctor of Technical Sciences, A.G. Ivakhnenko, Doctor of Technical Sciences, A.Yu. Ishlinskiy, Academician, Academy of Sciences UkrSSR, N.A. Kachanova, Candidate of Technical Sciences, P.I. Kuznetsov, Doctor of Physics and Mathematics, A.I. Kukhtenko, Doctor of Technical Sciences, B.N. Petrov, Corresponding Member, Academy of Sciences USSR, Ye.P. Popov, Doctor of Technical Sciences, G.M. Ulanov, Doctor of Technical Sciences, K.K. Khrenov, Academician, Academy of Sciences UkrSSR, P.I. Chinayev, Candidate of Technical Sciences, and N.M. Chumakov, Candidate of Technical Sciences; Tech. Ed.: G.V. Kruglov.

PURPOSE: This collection of papers is intended for engineers and other specialists working in various fields of automation.

COVERAGE: The collection includes reports and papers presented at the Conference on the Theory of Invariance and Its Applications to Automatic Devices, which was called by the Otdeleniye tekhnicheskikh nauk (Department of Technical Sciences) and the Institut elektrotekhniki (Institute of Electrical Engineering) of the Academy of Sciences of the Ukraine and convened in Kiyev October 16 - 20, 1958. The papers presented are concerned with high-quality automatic control systems designed on the basis of compensating for the effects of disturbances or maintaining the invariance of the quality to be regulated with respect to the disturbances acting on the system. The reports treat the physical and mathematical foundations of invariance in automatic control systems, they also consider methods for designing and calculating invariant systems and problems connected with specific cases of practical applications of compensation in various automatic systems. On the basis of these reports it was established by the Conference that, by utilization of the conditions of compensation and the principle of invariance, it is possible to produce automatic systems and various arrangements which are more perfect from the viewpoint of quality of the regulation and control process, stability, simplicity of construction, and reliability of operation. The following members of the Kiyev Seminar on Automatic Control are mentioned as organizers of the conference: A.I. Kukhtenko, A.G. Ivakhnenko, Yu.G. Kornilov, O.M. Kryzhanovskiy, N.M. Chumakov, N.A. Kachanova, and P.I. Chinayev. References accompany each article.

Card 6/8

Kostyuk, V.I.

L 1731-66

ACCESSION NR: AP5014213

in the plant before and in the nonlinear part is considered, as are continuous and discrete control systems. The effect of inexact determination of the nonlinear part of the plant characteristic on the operation of the system is discussed. Orig. art. has: 45 formulas and 1 figure.

ASSOCIATION: None

SUBMITTED: 06Dec63 ENCL: 00 SUB CODE: IE, DP

NR REF SOV: 004 OTHER: 001

Card 2/2

L 1731-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) IJP(c) BC

ACCESSION NR: AP5014213 UR/0102/65/000/002/0021/0028

AUTHOR: Kostyuk, V. I. (Kiev) 55

TITLE: Optimizer without trial signals using a self-adaptive model of a plant 45 B

SOURCE: Avtomatyka, no. 2, 1965, 21-28

TOPIC TAGS: adaptive control, automatic control theory, error minimization 9,15 14

ABSTRACT: The author considers an extremal system without trial signals, in which the extremal characteristic of the plant is continuously determined in the form of a parabola (identification problem), and the control effect required at the extremum point is then found. A self-adaptive model (employing in some cases orthogonal functions) of the nonlinear parts of the plant is used to determine optimum control. In some cases in which the extremal characteristic of the plant is better approximated by a higher-order polynomial, a more complicated self-adaptive model can be used. The presence of inertia

Card 1/2

KOSTYUK, V.I.

Structure of frequency filters of a self-adjustment circuit. Izv. vys. ucheb. zav.; prib. 8 no.5:52-56 '65. (MIRA 18:10)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut. Rekomendovana kafedroy avtomatiki i telemekhaniki.

L 36981-66

ACC NR: AP6008528

For a sufficiently slow variation of the signal-to-noise ratio the adaptive system secures a minimum of the pulsed mean square error. As in the case of continuous systems, the spectral density of the overall error in discrete servosystems does not depend on the frequency for "white noise" type perturbations. Orig. art. has: 41 formulas, 3 figures, and 1 table.

SUB CODE: 09/SUBM DATE: 13Apr64/ ORIG REF: 006/ OTH REF: 003

Card 2/2

L 36981-66 EWP(k)/EWT(d)/EWP(h)/EWP(l)/EWP(v) IJP(c) BC

ACC NR: AP6008528 SOURCE CODE: UR/0280/66/000/001/0124/0131

AUTHOR: Kostyuk, V. I. (Kiev)

ORG: none

53
B

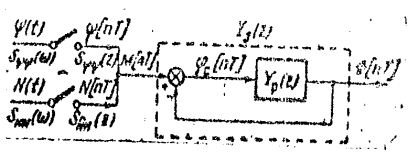
TITLE: Discrete self adaptive servosystems

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 1, 1966, 124-131

TOPIC TAGS: self adaptive control, automatic control theory, servosystem

ABSTRACT: The present paper extends the frequency filter method to discrete self adaptive servosystems which at their input accept stationary random signals together with noise. Following a detailed description of the basic system shown in Fig. 1, the author investigates theoretically the structure of the adaptation chain.

Fig. 1 The basic discrete servosystem



Card 1/2

L 34877-66
ACC NR: AR6014181

extremal controller can be used. It is noted that the above method of time-constant adjustment is also applicable to a purely discrete plant simulator, e. g., a digital computer. Two figures. Bibliography of 7 titles. V. M. [Translation of abstract]

SUB CODE: 13, 09

Card 2/2

L 34877-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) BC
ACC NR: AR6014181 SOURCE CODE: UR/0271/65/000/011/A013/A013

AUTHOR: Kostyuk, V. I.

TITLE: Determination of synamic characteristics of a plant

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika, Abs. 11A95

REF SOURCE: Vestn. Kiyevsk. politekhn. in-ta. Ser. avtomatiki, elektropriborostr. i radioelektron., no. 1, 1964, 32-36

TOPIC TAGS: automatic control, automatic control system, automatic control theory

ABSTRACT: Methods are considered for determining plant dynamic characteristics when no search signal is used. A well-known method of determining the characteristics is described: the use of a self-adjustment simulator that consists of parallel-connected aperiodic second-order sections. A structural diagram of the simulator and its equations are given. The time constants in these equations are either arbitrary or multiple. It is suggested that the time constants of the aperiodic sections be selected on the condition of minimum mean-square difference between the outputs of the plant and its simulator. This permits a considerably fewer parallel channels in the simulator or permits enhancing the accuracy of simulation with a given number of channels. A circuit diagram of one simulator channel is presented in which an extremal controller with a simulating input is used for adjusting the time constants. If the time constants are adjusted one after another, a pulse-type

Card 1/2 UDC: 62-5.001.5

Kostyuk, V. I.

KOSTYUK, V.I. (L'vov)

Radioactive phosphorus for treating chronic leucosis and erythremia. Klin.med. 35 [i.e.34] no.1 Supplement:26 Ja '57. (MIRA 11:2)

1. Iz L'vovskogo nauchno-issledovatel'skogo instituta perelivaniya krovi (dir. - dotsent D.G.Petrov, nauchnyy rukovoditel' - prof. I.I.Fedorov)
(LEUCOSIS) (ERYTHREMIA)

KOSTYUK, V.I.

Role of the transfusion of blood stored in alcohol-glucose-citrate in treating subacute septic endocarditis, nonspecific infectious polyarthritis, and serous pleuritis. Vrach.delo no.10:1093 O '57.
(MIRA 10:12)

1. L'vovskiy nauchno-issledovatel'skiy institut perelivaniya krovi i neotlozhnoy khirurgii (nauchnyy rukovoditel' - prof. I.I.Fedorov)
(BLOOD--TRANSFUSION)

Kostyuk V.I.

"Comparative Evaluation of Therapy of Chronic Leukoses by Urethan, Embikhin, Radioactive Phosphorus and X-Irradiation, by V. I. Kostyuk and S. B. Yayes, L'vov Scientific Research Institute of Blood Transfusion (director, Docent D. G. Petrov, scientific director, Prof I. I. Fedorov), Problemy Gematologii i Perelivaniya Krovi, Vol 2, No 1, Jan/Feb 57, pp 33 - 35

Results of treating leukosis patients in terms of remission of symptoms, by the various methods of urethan, embikhin, radioactive phosphorus, and X rays indicate that none of these therapeutic methods is satisfactory.

Sum. 1385

KOSTYUK, V. I.

Kostyuk, V. I.

"A Comparative Evaluation of Various Methods of Investigating the Functional State of the Cardiovascular System." Khar'kov Medical Inst. Khar'kov, 1955. (Dissertation for the Degree of Candidate in Medical Science)

So: Knizhnaya letopis', No. 27, 2 July 1955

KOSTIN, Ye. I.

"A comparative evaluation of certain methods of [illegible] the Functional Condition of the Cardiovascular System." Cand Med Sci, L'vov Medical Inst, Khar'kov-L'vov, 1954. (Kaftan, No 3, [illegible])

SO: Sum. No. 631, 24 Aug 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions. (14)

KOSTYUK, V.I.; CHEGLIKOV, A.G.

New method for reducing petroleum gases. Gaz. delo no.6:32-36 '64. (MIRA 17:8)

1. Institut gaza AN UkrSSR.

KOSTYUK, V.I.; CHEGLIKOV, A.G.

Small device for topping cracked gas. Nefteper. i neftekhim. no.4:11-13 '63 (MIRA 17:7)

1. Kiyevskiy institut ispol'zovaniya gaza AN UkrSSR.

KOSTYUK, V.I.

A brief account of a trip to Great Britain. Avtomatyka 9 no.1:85-90 '64. (MIRA 17:3)

KOSTYUK, V.I.

Water balance of the Panfilovskoye Irrigation System. Izv. AN Kir. SSR. Ser. est. i tekh. nauk 4 no.10:51-68 '62.
(MIRA 16:11)

1. Laboratoriya vodnogo balansa oroshayemykh territoriy (rukovoditel' -kand. tekhn. nauk M.I. Kaplinskiy) AN Kirgizskoy SSR.

KOSTYUK, V.I., red.; GURSHIY, M.Ye.[Hurzhii, M.IE.], tekhn. red.

Kherson. Kyiv, Derzh.vyd-vo "Mystetstvo," 1963. 1 v.
(MIRA 17:1)
(Kherson--Views)

IVAKHNENKO, Aleksey Grigor'yevna[Ivakhnenko, O.H.]; KOSTYUK, V.I., kand. tekhn. nauk, retsenzent; DEREVETS', S.K., red.izd-va; MATUSEVICH, S.M.[Matusevych, S.M.], tekhn. red.

[Cybernetic systems with composite control] Kibernetychni systemy z kombinovanym deruvanniam. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR, 1963. 486 p. (MIRA 17:3)

1. Chlen-korrespondent AN Ukr.SSR (for Ivakhnenko).

KOSTYUK, V.I., inzh.

Diagram "i" and "ex" for propane and ethane. Khol.tekh. 40 no.2:77 Mr-Ap '63. (MIRA 16:4)
(Refrigerants--Thermal properties)
(Propane) (Ethane)

An experimental study ...

and replacement of ammonia by propane at about 1/9 the cost. Compressed propane was delivered to the lower part of a contact condenser and forced upward against a flow of cooling water. The condensate and water passed into the lower part of the condenser where the phases were separated. The use of propane increased the cooling capacity. The equilibrium concentration of propane in water under ordinary working conditions (pressure of 11 to 12 atm, temperature of 30°) was 0.5×10^{-3} kg per kg of water. Losses of propane from water in the aqueous condensate were about 5×10^{-3} kg per kg of circulating propane. Equilibrium concentration of water in liquid propane was 0.14×10^{-3} kg/kg. Two figures and one table were given. English language references: L. Garwin and B. D. Smith, Chem. Engng Progress, 1953, no. 11; T. Woodward, Ibid., 1961, no. 1; G. Karnofsky, Ibid., 1961, no. 1; W. G. Knox, T. Hess, Ibid., 1961, no. 2; W. F. Hoot, Petrol. Refiner, vol. 30, no. 5, 1961, D. S. Davis, Chem. and Process Engng., 1960, vol. 41. no. 2.

ASSOCIATIONS: Nauchno-issledovatel'skiy institut sinteticheskikh spiritov i organicheskikh produktov (Scientific Research Institute for Synthetic Alcohols and Organic Products) (Aerov, M. E.; Bystrova, T. A.; Zelentsova, N. I.); Institut ispol'zovaniya gaza AN UkrSSR (Institute for the Utilization of Gas, AS, UkrSSR) (Chaglikov, A. G.; Klimenko, A. P.; Kostyuk, V. I.)

S/066/63/000/001/002/002

AUTHOR: Aerov, M. E., Doctor of Technical Sciences, Bystrova, T. A., Candidate of Technical Sciences, and Zelentsova, N. I., Engineer; Klimenko, A. P., Candidate of Technical Sciences, Cheglikov, A. G., Candidate of Technical Sciences, and Kostyuk, V. I., Engineer

TITLE: An experimental study of contact heat exchange

PERIODICAL: Kholodil'naya tekhnika, no. 1, 1963, 37-40

TEXT: To study contact heat exchange, the authors investigated packed evaporators and condensers and developed apparatus which used these devices. The systems studied were: an aqueous solution of calcium chloride -- boiling propane and an aqueous solution of calcium chloride-boiling butane. The basic part of the apparatus was a contact evaporator which was a scrubber filled with ceramic packing of 17 x 17 x 4 mm Raschig rings. The temperature difference in the apparatus was 1-3°. Values of the heat transfer coefficient, 3,000 to 10,000 kcal/m^3 per hour, obtained here in the upper zone of the evaporator were lower than those obtained in industrial foaming apparatus, due to lower steam velocities.

Contact heat exchange in condensers was also proposed to improve effectiveness of refrigeration equipment. This scheme permitted elimination of tube heat exchangers

Card 1 of 2

AEROV, M.E., doktor tekhn.nauk; BYSTROVA, T.A., kand.tekhn.nauk; ZELENTSOVA, N.I., inzh.; KLIMENKO, A.P., kand.tekhn.nauk; CHEGLIKOV, A.G., kand.tekhn.nauk; KOSTYUK, V.I., inzh.

Experimental study of the contact heat exchange. Khol.tekh. 40 no.1: 37-40 Ja-F '63. (MIRA 16:3)

1. Nauchno-issledovatel'skiy institut sinteticheskikh spirtov i organicheskikh produktov (for Aerov, Bystrova, Zelentsova).
2. Institut ispol'zovaniya gaza AN UkrSSR (for Klimenko, Cheglikov, Kostyuk).
(Heat—Transmission) (Refrigerants)

L 4372h-65

ACCESSION NR: AP5006695

ENCLOSURE: 01

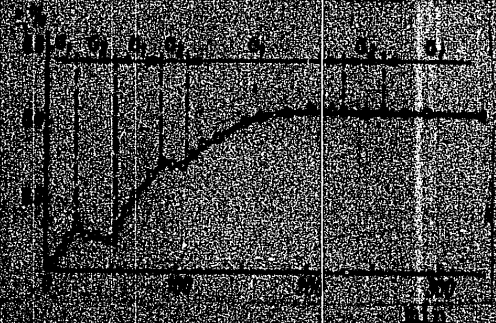


Fig. 1. Creep curve for a cadmium whisker tested at 300C under variable stress, $\sigma_1 = 1100$ g/mm^2; $\sigma_2 = 80$ g/mm^2.

Card 3/3

L 3932-65
ACCESSION NR: AP5006805

first creep stage produced no additional creep. Creep reappeared in whiskers with artificial dislocations introduced after the arrest of creep and the removal of stress. In this case, the creep began at stresses substantially lower than the initial, and lasted a very short time. Whiskers subjected to creep test had a considerably higher tensile strength than that of the original whiskers, which indicated a perfection of the whisker structure. A direct count of the etch pits on the side surfaces of ROI whiskers before and after creep showed a great decrease in the dislocation density in the whiskers during the creep process. Orig. art. has: 3 figures. [MS]

ASSOCIATION: Institut gidrodinamiki SO AN SSSR (Novosibirsk (Institute of Hydrodynamics, SO AN SSSR)

SUBMITTED: 21Jun64 ENCL: 01 SUB CODE: SS, ME

NO REF SOV: 004 OTHER: 007 ATD PRESS: 3208

Card 2/2

L 33120-65 EPA(s)-2/EWT(m)/EPF(c)/EPR(n)-2/EWA(d)/T/EWP(t)/EWP(b)/EWA(c)
Pr-4/Pz-6/Pa-4 IJP(c) JD

ACCESSION NR: AP5006895 S/0181/65/007/003/0858/0861

AUTHOR: Berzhyakov, A. V.; Kovtunk, V. G.; Kaling, K. K.

TITLE: Some peculiarities of the creep in whiskers

SOURCE: Fizika tverdogo tela, v. 7, no. 3, 1965, 858-861

TOPIC TAGS: creep, whisker, cadmium whisker, sodium chloride whisker, whisker creep, whisker dislocation density, dislocation density

ABSTRACT: The creep behavior and its dependence on the dislocation density in cadmium whiskers 2—20 μ thick and NaCl whiskers 9—30 μ thick have been investigated. The creep tests were conducted in a helium atmosphere at 20—100C under a respective stress of 10^2—$2 \cdot 10^2$ and 30—$5 \cdot 10^3$ g/mm², lower than the yield point. Cadmium whiskers exhibited creep behavior typical for whiskers, i.e., they had no second stage of creep. The total elongation varied from 0.1 to 0.5% or was zero in individual cases. Although the creep arrest alone does not prove that an annihilation of dislocations occurs, i.e., perfection of the crystal, there are some indirect indications that this is the case: a noticeable aftereffect caused by stress variation occurred only during the first creep stage and ceased with the arrest of creep (see Fig. 1 of the Enclosure). An increase of stress after the

Card 1/2

KOSTYUK, V.G.; ZILING, K.K.; SEREBRYAKOV, A.V.

Strength characteristics of whisker type metal crystals with admixtures. Fiz. tver. tela 5 no.11:3060-3065 N '63.
(MIRA 16:12)

1. Institut gidrodinamiki Sibirskogo otdeleniya AN SSSR, Novosibirsk.

KOSTYUK, M.D.

MIKHNEV, A.L., professor; TONKONOGIY, I.G., kandidat meditsinskikh nauk; KRYLOVA, N.M.; KOSTYUK, V.D.

Therapeutic effectiveness of plasmol in gastric and duodenal ulcers, in nonspecific infectious polyarthritis, bronchial asthma, and radiculitis. Sov.med.20 no.10:74-78 O '56. (MLRA 10:1)

1. Iz Otdela klinicheskoy farmakologii (zav. - prof. A.L.Mikhnev) Ukrainskogo nauchno-issledovatel'skogo instituta klinicheskoy meditsinskoy imeni akad. N.D.Strazhesko.

(PLASMA, ther. use
deproteinized plasma)

KOSTYUK, V.A.; PEREKRESTOV, V.I.; BUL'SKIY, M.T. [deceased]; VAL'TER, O.I.; KISLOV, N.A.; TSVETKOV, P.M.; AVRAMOV, V.M.

Rapid repair of the hearth bottom fritting of tilting open-hearth furnaces. Stal' 23 no.8:707-710 Ag '63. (MIRA 16:9)
(Open-hearth furnaces--Maintenance and repair)

KOSTYUK, V.A.; SKREBTSOV, A.M.; VAL'TER, O.I.

Studying conditions of fritting and wear of hearth bottoms in tilting open-hearth furnaces. Ogneupory 28 no.3:115-118 '63.
(MIRA 16:2)

1. Metallurgicheskiy zavod "Azovstal'".
(Open-hearth furnaces--Maintenance and repair)

Industrial Units for Welding With an Electron Beam

within 14 - 15 minutes. The unit is equipped with a portable control desk. Tests were made with both of the described machines. On the ELU-2 unit 200 - 210 butt chokes were welded to 2 mm thick aluminum alloy parts within 7 hours. During welding sufficient evacuation of the cavities was obtained, the oxide film was eliminated and the penetration depth was greater than in welding in a gas shield. Welding speed was 25 - 30 m/hr. On the ELU-1 machine various types of weld were produced with 1Kh18N9T (1Kh18N9T) steel, including circumferential, edge and overlap joints; thin walled parts were welded to thick walled ones. Sheets were welded on a copper backing. The speed of welding 1 mm thick sheets at 12 m-amp current in the beam and 22 kv accelerating voltage, was 34 m/hr. The minimum diameter of the electron beam is obtained at a distance of 30 - 40 mm from the focusing lens butt; the vacuum was 5.10^{-5} mm Hg. The joints had a satisfactory quality. The machines are recommended for welding pieces of high-melting and rare metals.

Card 3/4

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87998

S/135/61/000/001/011/018
A006/A001

Industrial Units for Welding With an Electron Beam

suring the automated setting of the work, assembly of elements to be welded in the vacuum, and rotation during welding. The vacuum station is equipped with 2 fore-vacuum pumps and a high-vacuum unit equipped with a vapor jet pump ensuring a vacuum of not less than 5.10^{-5} mm Hg within 15 - 20 minutes after the onset of evacuation. An electron beam gun as described by Ye.M. Kozlov in the preceding article is used. It can be displaced vertically by 45 mm and inclined through 3° providing for a horizontal displacement of the beam by 15 mm. The incandescene of the gun cathode is made through a high-voltage cable. The magnetic lens (7-10v) is fed from a stabilized rectifier. The portable gun supply unit includes a high-voltage generator consisting of a transformer and a rectifier (25 kv, 3 kw) and an incandescene transformer (10 v, 30 amp) placed in an oil-filled container. The ЭЛУ-2 (ELU-2) unit, designed under the supervision of Engineer K.A. Lashkov, is intended for welding circular edge joints. Up to 30 parts can be welded without disturbance of the vacuum. The unit consists of a working chamber with an automatic device, an electron gun, a vacuum station, a high-voltage power supply source, a three-phase interrupter and two cabinets for electric equipment. Charging and discharging of the work pieces is made through a hatch in the operational chamber cover. The drive and control of the internal servomechanisms is brought about outside the chamber. Repeated evacuation up to a 5.10^{-5} mm Hg vacuum is performed

Card 2/4

87998

S/135/61/000/001/011/018
A006/A001

1.5400 2708

AUTHORS: Kostyuk, V.A., Candidate of Technical Sciences, Kozlov, Yu.M., Shuvalov, A.V., andGerasimenko, A.V., Engineers

TITLE: Industrial Units for Welding With an Electron Beam

PERIODICAL: Svarochnoye proizvodstvo, 1961, No. 1, pp. 41 - 43

TEXT: The authors developed two special automated units for the welding of several work pieces of the same type without disturbance of the vacuum. 1) the ЭЛУ-1 (ELU-1) unit is intended for the welding with an electron beam of longitudinal and circumferential joints on high-melting and easy oxidizing metal parts. Up to 10 articles of the same type can be welded without disturbance of the vacuum. The unit consists of a working chamber, mechanisms for the fastening and displacement of the work, an electron gun, a vacuum station, a high-voltage power supply, a three-phase interrupter and a gun control desk. The working chamber is placed on a heavy frame; the mechanisms of fastening and displacement are arranged on trolleys and are wheeled out of the chamber during loading and unloading the machine. Figure 2 shows an attachment for the welding of 250 - 1,000 mm sheets which are fastened to the welding table. Round parts are welded on a special mechanism as-

Card 1/4

S/137/61/000/012/074/149
A006/A101

AUTHORS: Val'ter, O.E., Kostyuk, V.A., Kologrivov, N.P., Yashchenko, Z.A.

TITLE: Studying the nature of metal deformation during rolling with the aid of radioactive isotopes

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 12, 1961, 1-2, abstract 12D6 (V sb. "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR, T. 3", Moscow, Gostoptekhizdat, 1961, 207 - 209)

TEXT: The investigation was made during the rolling of P-50 (R-50) type rail sections from an ingot weighing 9.76 tons, and of a Nr.36 double Tee beam section, rolled from a killed steel ingot weighing 6.75 tons. The ingots were rolled in conventional order. The nature of metal deformation in these sections was studied with the aid of the P^{32} radioactive isotope. The P^{32} isotope was introduced by separate portions and at certain intervals into the mold with the molten metal. Thus a series of zones were obtained during the crystallization process. The deformation of these zones during rolling should reflect the nature of the flow and the metal. A method was developed to study the deformation of

Card 1/2

Determination of the...

studied with the aid of isotope Sr^{89} in the amount of 300 millicuries, introduced into the furnace during the time of pure ebullition. Dispersed nonmetallic impurities, whose area could not be measured, were discovered in finished rails. The investigation of the possibility of contaminating the steel by putty was carried on by means of isotope Ca^{45} in the quantity of 75 millicuries. Templets were taken of the rails every two meters. In 24 out of the 52 templets nonmetallic impurities were discovered. In all, as result of putty crumbling 9.1% is left in the metal in the form of nonmetallic impurities. In the same manner it was discovered that the shrink-hole charge is absorbed up to the middle of the ingot, and it may remain in the metal in the form of exogenous nonmetallic impurities. It was discovered that 11 - 14% of the refractory powder from the ladle is mechanically "entrapped" in the steel. The mean content of nonmetallic impurities in rail steel is 0.00012 grams per gram of steel, 1 - 2.5% of which quantity consisting of impurities tagged with radioactive isotopes.

Yu. Nechkin

[Abstracter's note: Complete translation]

Card 2/2

S/137/61/000/011/022/123
A060/A101

AUTHORS: Skrebtsov, A. M., Sviridenko, F. F., Kostyuk, V. A., Popova, A. N.

TITLE: Determination of the quantity of nonmetallic impurities in rail steel by the use of radioactive isotopes

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 11, 1961, 34, abstract 11V210 (V sb.: "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR, v. 3", Moscow, Gostoptekhizdat, 1961, 200 - 202)

TEXT: A study was made of the contamination of metal by exogenous nonmetallic impurities falling into the metal from the furnace slag, the shrinkhole charge of the ingot head, the refractory putty of the head extension piece, dust in the steel-pouring ladle, the refractory clog of the steel-pouring tap. Preparations of radioactive isotopes of Ca^{45}, Ba^{131}, Sr^{89}, P^{32} were dissolved in HNO_3 and this solution was used to soak the refractory substances which were being introduced into the metal in the course of tapping or pouring. After the rails were rolled, templets were taken for the radiographic investigation of the presence of nonmetallic impurities. The radiography was carried out on X-ray film XX with exposure-time of 60 days. The contamination by the furnace slag was

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quality of the steel smelted; 4) the determination of the quantity of exogeneous nonmetallic impurities in rail steel. The utilization of radioactive isotopes for γ-ray defectoscopy is described.

N. Yudina

[Abstracter's note: Complete translation]

S/137/62/000/001/005/237
A060/A101

AUTHORS: Bul'skiy, M.T., Val'ter, O.I., Skrebtsov, A.M., Kostyuk, V.A., Sviridenko, F.F., Cherepivskiy, A.A.

TITLE: Use of radioactive isotopes for the investigation of the production technology at the Azovstal' plant

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 6, abstract 1V41 (V sb. "Radioakt. izotopy i yadern. izlucheniya v nar. kh-ve SSSR, v. 3", Moscow, Gostoptekhizdat, 1961, 130 - 132)

TEXT: The authors consider the problem of applying radioactive isotopes in the blast-furnace, open-hearth furnace, rolling practice. The most important researches carried out at the plant were: 1) the study of the operation of open-hearth furnaces when the liquid finishing slag from the preceding heat was left in the furnace; 2) the study of the expediency of using incompletely burned lime instead of limestone in the charge of open-hearth furnaces; 3) the study of the quantity of slag during the pure ebullition period of the vat upon the

Card 1/2

Investigation of the Stability of Hearth Weld in Open-hearth Furnaces by Means of Radioactive Isotopes

furnace hearths. The wear of the hearth is smaller in the smelting of highly carbonaceous steels than in that of steel with small carbon content. In order to prolong the campaign, the introduction of oxygen should be intensified as much as possible. The longest campaign of furnace hearths may be observed with a charging period of 40 to 60 minutes. There are 9 figures, 1 table, and 7 Soviet references.

ASSOCIATION: Zavod "Azovstal'" ("Azovstal'" Plant)

Investigation of the Stability of Hearth Weld in Open-hearth Furnaces by Means of Radioactive Isotopes

carried out by introducing radioactive phosphorus isotopes. Experimental results are compiled in a table. Figure 1 illustrates the dependence of the weld stability of furnace hearths on the consumption of coke gas, and figure 2 gives the dependence on the vault during hearth repair. Figure 3 represents the dependence of the number of smeltings until radioactivity occurs on the duration of hearth repair. The dependence of the campaign on the repair period is shown by figure 4. Figure 5 represents the dependence of the interval between 2 repairs of the furnace on the carbon content of steel, figure 6 on the smelting period, figure 7 on the firing period, figure 8 on the intensity of blasting oxygen through the tank, and figure 9 on the charging period of the furnace. Experiments proved that the optimum charging period amounts to 40 or 60 minutes. Conclusion: A method of investigating the wear of hearth welds in the case of tiltable furnaces was elaborated by means of the radioactive isotope phosphorus-32. Maximum stability of the weld is attained when using coke gas up to 5,000 m^3/h during the hot repair of

21(5), 21(8) SOV/131-59-8-8/14

AUTHOR: Skrebtsov, A. M., Kostyuk, V. A.

TITLE: Investigation of the Stability of Hearth Weld in Open-hearth Furnaces by Means of Radioactive Isotopes

PERIODICAL: Ogneupory, 1959, Nr 8, pp 371-376 (USSR)

ABSTRACT: In the "Azovstal'" Plant tiltable furnaces with basic chrome-magnesite vaults are installed. Steel smelting is carried out during shift according to the scrap-ore procedure, thus utilizing 75% of liquid phosphorous cast iron. The stability of the hearths exerts a considerable influence on the capacity of open-hearth furnaces. The present paper is intended to serve for the elaboration of a method for investigating hearth wear by means of radioactive isotopes. For this purpose, an ampul containing radioactive phosphorus-32 and iron powder is placed on the furnace hearth prior to pouring in the magnesite powder. The wear of the hearth weld to the position of the ampul is determined by the occurrence of radioactivity in the furnace dross. Participants in the investigation were N. L. Rednikin, A. D. Fetisov, V. N. Sayenko, V. G. Krivtsunov, and V. Kh. Prokopenko (Footnote 1). 12 experimental repairs of furnace hearths were

Card 1/3

Mechanization and Automation of Welding Processes. The Automation of Welding Operations in the Aviation Industry

cantilever range of up to 3 m, designed by "Elektrik". There are 14 photographs and 5 non-Soviet references.

AVAILABLE: Library of Congress

Card 2/2

Kostyuk, V.A.

135-58-4-1/19

AUTHORS: Boytsov, V.V., Professor; Kostyuk, V.A., Candidate of Technical Sciences; and Orlov, B.D., Candidate of Technical Sciences

TITLE: Mechanization and Automation of Welding Processes (Mekhanizatsiya i avtomatizatsiya svarochnykh protsessov) The Automation of Welding Operations in the Aviation Industry (Avtomatizatsiya svarochnykh rabot v aviatsionnoy promyshlennosti)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 4, pp 1-5 (USSR)

ABSTRACT: The article contains general information on the automation of welding processes in the Soviet and foreign aviation industry. A total of 14 photos show various types of welding devices. The authors mention special Soviet equipment such as: a series of machines for welding aluminum alloys designed by VNIIESO and the "Elektrik" plant; an electronic current stabilizer (type "RAST - 4A"); a modulator for spot welding providing the smooth increase and drop of the welding current pulses (type "ME - 1"); and some unique machines for spot and roller welding with a

Card 1/2

KOSTYUK, V.A.

AID P - 5404

Subject : USSR/Engineering

Card 1/1 Pub. 107a - 6/12

Authors : Verchenko, V. R., Kand. of Tech. Sci., V. A. Kostyuk, Kand. of Tech. Sci., and V. A. Yakimov, Eng.

Title : The ARK-1 automatic machine for argon-electric arc welding with melting and non-melting electrodes.

Periodical : Svar. proizv., 10, 20-22, O 1956

Abstract : The ARK-1 welding machine built at the Scientific Research Institute of Technology and Organization of Production with V. A. Yakimov (one of the authors) as its chief designer is briefly described and its performance outlined. Three tables, 3 photos and 1 drawing; 2 Russian references (1948, 1952).

Institution : As above

Submitted : No date

KOSTYUK, V.A., zamestitel' glavnogo mekhanika; NOSENKO, T.M.

Organization of the unit-method for repairing rolling mills.
Metallurg no.5:19-22 My '56. (MLRA 9:9)

1.Pomoshchnik nachal'nika po oborudovaniyu stana 2500 (for Nosenko).2.Magnitogorskiy metallurgicheskiy kombinat.
(Magnitogorsk--Rolling mills--Repairing)

KOSTYUK, V.A.

Separation of the B-picoline fraction of coal tar by a two-solvent extraction. Trudy IGI 12:135-142 '61. (MIRA 14:3)
(Picoline) (Coal tar)

S/180/60/000/03/028/030
E071/E333

Quantitative Determination of γ-, β-picolines and 2,6-Lutidine by the Method of Precipitation Chromatography

obtained. The relationship between the content of the individual components and the height of the individual zone is given in the figure and table. The individual components can be determined with an accuracy of 3-4%. It is claimed that the method can be used for quantitative determination of simultaneously present γ and β-picolines and 2,6-lutidine, e.g. in picoline fractions, under laboratory and industrial conditions. There are 1 figure, 1 table and 4 references, 2 of which are Soviet and 2 English.

SUBMITTED: October 17, 1959

Card 2/2

S/180/60/000/03/028/030
E071/E333

AUTHOR: Kostyuk, V.A. (Moscow)

TITLE: Quantitative Determination of γ-, β-picolines and 2,6-lutidine by the Method of Precipitation Chromatography

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1960, Nr 3, pp 146 - 148 (USSR)

ABSTRACT: The object of the work was to find appropriate chromatographic conditions under which the separation of γ and β picoline zones was as distinct as that of lutidine and β picoline zones. The separation of the above compounds was based on the formation of a bright navy blue complex of $CuCl_2 \cdot 2H_2O \cdot 4\gamma$-picoline, blue complex of $CuCl_2 \cdot 2H_2O \cdot 2\beta$-picoline and on lilac complex of 2,6-lutidine. It was found that by an appropriate preparation of alumina (overnight saturation with aqueous solution of cupric chloride in a proportion 250 g of Al_2O_3, 20 g $CuCl_2 2H_2O$ and 160 ml. of water, drying for 6 hours at 60 °C), adsorption of the analysed compounds from a benzene solution (1.5 - 0.5 ml.) and elutriation with the same amount of benzene, a good separation into three distinct zones is

Card1/2

On the Problem of the Quantitative Determination of 2,6-lutidine, β- and γ-Picoline in the β-Picoline Fraction of Tar by the Chromatographical Method

γ-picoline (Fig 2). There are 2 figures, 1 table, and 9 references, 3 of which are Soviet.

PRESENTED BY: Kafedra analiticheskoy khimii Moskovskogo tekhnologicheskogo instituta myasnoy i molochnoy promyshlennosti (Chair of Analytical Chemistry, Moscow Technological Institute of Meat- and Milk Industry)

SUBMITTED: October 18, 1958

5(3) SOV/156-59-2-23/48

AUTHOR: Kostyuk, V. A.

TITLE: On the Problem of the Quantitative Determination of 2,6-Lutidine, β- and γ-Picoline in the β-Picoline Fraction of Tar by the Chromatographical Method (K voprosu o kolichestvennom opredelenii 2,6-lutidina, β- i γ-pikolinov v β-pikolinovoy fraktsii smoly khromatograficheskim metodom)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 2, pp 307-310 (USSR)

ABSTRACT: The well-known chromatography of the pyridine bases with a low boiling point on aluminum oxide under addition of a solution of copper chloride in methanol (Refs 1-6) is discussed. Now the author determines the dependence of the height of one zone of the chromatic picture on the concentration of the corresponding component. A table shows the individual mixing ratios in the individual experiments and the heights of zones obtained. Two diagrams are plotted (Figs 1 and 2) on the basis of these results giving for the relative height of zone expressed in percent of the total chromatic picture the lutidine concentration as a function of picolines (Fig 1) and the concentration of β-picoline as a function of

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PHASE I BOOK EXPLOITATION SOV/4350

Soveshchaniye po khimii, tekhnologii i primeneniyu proizvodnykh piridina i khinolina. Riga, 1957

Khimiya, tekhnologiya i primeneniye proizvodnykh piridina i khinolina; materialy soveshchaniya (Chemistry, Technology and Utilization of Pyridine and Quinoline Derivatives; Materials of the Conference) Riga, Izd-vo AN Latviyskoy SSR, 1960. 299 p. Errata slip inserted. 1,000 copies printed.

Sponsoring Agencies: Akademiya nauk Latviyskoy SSR. Institut khimii; Vsesoyuznoye khimicheskoye obshchestvo.

Ed.: S. Bazhanova; Tech. Ed.: A. Klyavinya; Editorial Board: Yu. A. Bankovskiy, Candidate of Chemistry, E. V. Vanaga, Candidate of Chemistry (Resp. Ed.), L. P. Zalukayev, Doctor of Chemistry, and M. M. Kalnyn'.

PURPOSE: This book is intended for organic chemists and chemical engineers.

COVERAGE: The collection contains 33 articles on methods of synthesizing or producing pyridine, quinoline, and their derivatives from natural sources. No personalities are mentioned. Figures, tables, and references accompany the articles.

TABLE OF CONTENTS:

Kostyuk, V.A.

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